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Training oncology physicians to advise their patients on complementary and integrative medicine: An implementation study for a manual-guided consultation

Witt, Claudia M ; Helmer, Stefanie M ; Schofield, Penelope ; Wastell, Marisa ; Canella, Claudia ; Thomae, Anita Verena ; Rogge, Alizé A

Abstract: **BACKGROUND:** The unmonitored use of complementary medicine in patients with cancer can be associated with an increased risk of safety-related issues, such as lower adherence to conventional cancer therapies. Training oncology physicians to advise their patients about the effectiveness and safety of these therapies could improve this situation. **METHODS:** The objective of this study was to develop and pretest a consultation framework that has high potential to be widely implemented. The framework comprises: 1) a systematically developed and tested, manualized, guided consultation; and 2) blended learning training (e-learning and communication skills training workshop) to upskill oncology physicians in advising their patients on complementary and integrative medicine (CIM). For this implementation study, mixed methods were used to develop the manual (literature review, consensus procedure, pilot testing) and the training (questionnaires and interviews with oncology physicians and patients with cancer and an examination of the skills in a setting with standardized patients). **RESULTS:** The training was tested with 47 oncology physicians from across Germany. The manual-guided consultation (context: general information on the setting and communication techniques; inform: consultation duration and content; capture: previous CIM use; prioritize: focus on consultation; advise: evidence-based CIM recommendations; discuss, advise, accept, or advise against other CIM; concretize advice: summary and implementation; and monitor: documentation) was considered suitable. The structure and time frame (maximum, 20 minutes) of the consultation as well as the training were feasible and well accepted. **CONCLUSIONS:** The current study demonstrates that the KOKON-KTO framework (a German acronym for Competence Network for Complementary Medicine - Consultation Training for Oncology Physicians) is suitable for training oncology physicians. Its implementation can lead to better physician-patient communication about CIM in cancer.

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Training Oncology Physicians to Advise Their Patients on Complementary and Integrative Medicine: An Implementation Study for a Manual-Guided Consultation

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BACKGROUND: The unmonitored use of complementary medicine in patients with cancer can be associated with an increased risk of safety-related issues, such as lower adherence to conventional cancer therapies. Training oncology physicians to advise their patients about the effectiveness and safety of these therapies could improve this situation. **METHODS:** The objective of this study was to develop and pretest a consultation framework that has high potential to be widely implemented. The framework comprises: 1) a systematically developed and tested, manualized, guided consultation; and 2) blended learning training (e-learning and communication skills training workshop) to upskill oncology physicians in advising their patients on complementary and integrative medicine (CIM). For this implementation study, mixed methods were used to develop the manual (literature review, consensus procedure, pilot testing) and the training (questionnaires and interviews with oncology physicians and patients with cancer and an examination of the skills in a setting with standardized patients). **RESULTS:** The training was tested with 47 oncology physicians from across Germany. The manual-guided consultation (context: general information on the setting and communication techniques; inform: consultation duration and content; capture: previous CIM use; prioritize: focus on consultation; advise: evidence-based CIM recommendations; discuss, advise, accept, or advise against other CIM; concretize advice: summary and implementation; and monitor: documentation) was considered suitable. The structure and time frame (maximum, 20 minutes) of the consultation as well as the training were feasible and well accepted. **CONCLUSIONS:** The current study demonstrates that the KOKON-KTO framework (a German acronym for Competence Network for Complementary Medicine - Consultation Training for Oncology Physicians) is suitable for training oncology physicians. Its implementation can lead to better physician-patient communication about CIM in cancer. *Cancer* 2020;126:3031-3041. © 2020 The Authors. *Cancer* published by Wiley Periodicals, Inc. on behalf of American Cancer Society This is an open access article under the terms of the Creative Commons Attribution-NonCommercial-NoDerivs License, which permits use and distribution in any medium, provided the original work is properly cited, the use is non-commercial and no modifications or adaptations are made.

KEYWORDS: blended learning, cancer, complementary medicine, integrative oncology, physician-patient communication, practice guidelines as topic, referral and consultation.

INTRODUCTION

Many patients with cancer use complementary medicine (CM). A systematic review has demonstrated that the use of CM has increased over time, and approximately one-half of patients with cancer have used it at least once.¹ Patients who have cancer consider CM therapies for various reasons, including the wish to reduce the side effects of cancer treatment or to gain personal control over their own treatment plan.²⁻⁴ A retrospective analysis of data from a US cancer registry⁵ concluded that the use of these therapies administered by nonmedical personnel in an alternative context was associated with a 2-fold greater risk of death compared with none. This was mainly explained by lower adherence to the recommended cancer treatments. This finding, which is also supported by previous research,^{6,7} highlights the importance of discussing CM during oncology consultations. Because alternative medicine usually refers to therapies that are used as an alternative to conventional cancer treatment in an unmonitored context, it is important to support patients in translating their needs and wishes into a complementary and integrative model of care to reduce possible safety-related risk issues.

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See editorial on pages 2968-70, this issue.

Additional supporting information may be found in the online version of this article.

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Oncology physicians are members of the cancer care team and often are in early contact with the patients. Data show that patients want to be informed by their oncology physicians about complementary and integrative medicine (CIM)^{8,9}, and addressing CIM might increase patients' trust in cancer treatments.^{10,11} Moreover, studies show that physician-led consultations on CIM might have a positive effect on adherence to cancer treatments and overall quality of life in patients with cancer.^{12,13} However, physicians often do not initiate CIM consultations because of low CIM knowledge.¹⁴ There is an urgent need for oncology physicians to feel competent in guiding their patients through the often confusing and heterogeneous field of CIM.¹⁵ Guidelines for CIM consultations in oncology exist,⁷ but consultations based on those guidelines are often difficult to implement for reasons such as a lack of time or the absence of previous evidence-based CIM training.^{7,16} Surveys among physicians indicate a strong interest in evidence-based CIM training for cancer care.¹⁷⁻²⁰ In most countries, training in some type of CIM therapy is available for physicians but consists of training on how to provide CIM (eg, acupuncture or phytotherapy) and not how to advise on available CIM therapies.

With the goal of translating evidence-based knowledge into clinical practice, implementation science addresses these issues by translating scientific findings into practical application.²¹ Our previous cluster-randomized study showed that oncology physicians who had little experience in discussing CIM gained the most benefit from CIM training.²² However, this training used the conceptual approach that patients would receive CIM information from an oncology physician who was not their cancer-treating physician. This resulted in consultations lasting on average 45 minutes, making broad implementation difficult. To meet the needs of patients and physicians and to foster uptake in usual care, training and CIM consultation must fit into the standard cancer care continuum. Hence, it is crucial for the implementation strategy to guide the development of the consultation framework.

In this article, we describe the implementation strategy, the development of the KOKON-KTO (a German acronym for Competence Network for Complementary Medicine - Consultation Training for Oncology Physicians) framework and the associated consultation manual, the corresponding blended learning, and a pilot test of the training and its impact on physician-patient interactions.

Ethics Approval and Consent to Participate

The following independent Medical Ethics committees approved the KOKON-KTO study: Ethics Committee of the Charité - Universitätsmedizin Berlin (EA1/127/17), Medical Association Hamburg (MC-368/17), Medical Association Baden-Wuerttemberg (B-F-2017-10), Medical Association Nord Rhine (2417337), Ethics Committee of the Medical Association of Westphalia-Lippe (2017-624-b-S), Ethics Committee at the Medical Faculty of Würzburg (274/17_z-me), Ethics Committee of the Medical Faculty of Heidelberg (S-550/2017), and Ethics Commission of the Albert-Ludwigs-University of Freiburg (531/17). Informed consent was obtained from all participants. The trial registration number of the KOKON-KTO study is DRKS00012704 on the German Clinical Trials Register (registered August 28, 2017).

Availability of Data and Materials

The data sets analyzed during the current study are available from the corresponding author on reasonable request.

MATERIALS AND METHODS

Implementation Strategy

The implementation strategy included the following criteria, which were considered crucial for the future dissemination of the framework (manual and training): 1) clinically feasible consultation time that can be implemented in usual care (maximal length of 20 minutes), 2) low threshold for training access (time length, date, location flexibility), 3) teaching of transferable skills that are perceived as useful for other consultation situations, 4) a consultation framework that allows adaptation to the individual consultation style and includes a structured manual and clinical practice materials, and 5) compatibility with relevant standards (eg, competency framework). The implementation strategy was based on the RE-AIM framework (a model for evaluating public health interventions that assesses 5 dimensions: reach, efficacy, adoption, implementation, and maintenance).²³

Development of the KOKON-KTO Framework

The KOKON-KTO framework was developed for oncology physicians' consultations to help to close the gap: patients want to receive CIM advice from their oncology physician, but physicians do not feel competent to provide it. The objective of the KOKON-KTO is to enable oncology physicians to provide advice to their cancer patients about the effectiveness and safety of CIM in

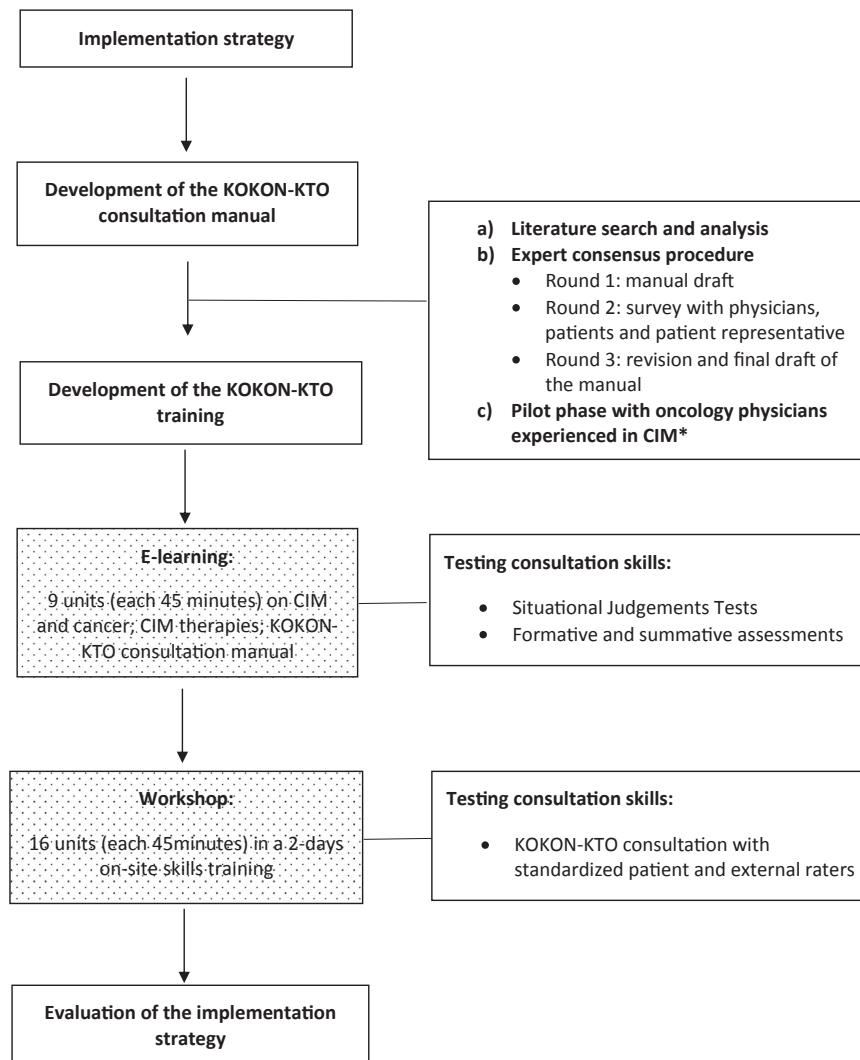


Figure 1. This is a flowchart of the development and evaluation process. Asterisks indicate complementary and integrative medicine (CIM). KOKON-KTO indicates Competence Network for Complementary Medicine - Consultation Training for Oncology Physicians.

a nonjudgmental and empathic consultation. The framework might be adaptable to other health professions in the cancer care team (eg, nurses), but is not intended to train Integrative Medicine Physicians providing CIM. Therefore, the KOKON-KTO framework was developed for its use by oncology physicians working in private practices or cancer clinics to enhance physician-patient communication about CIM as an addition to standard cancer care.

As described in previous medical education initiatives,^{24,25} training oncology physicians in CIM might increase communication skills, improve the oncology physician-patient interaction, and enhance physicians' understanding of CIM use in patients with cancer.

Taking this knowledge into account, the objective of the KOKON-KTO framework, consisting of the KOKON-KTO manual and the blended learning training (e-learning and workshop), is to follow a systematic and evidence-based approach toward teaching oncology physicians how to provide CIM advice to their patients with cancer to enhance patients' and physicians' discussions of CIM as a supportive option during cancer treatment.

KOKON-KTO consultation manual

Development of the manual was based on a systematic literature search and analysis, followed by an international expert consensus procedure (Fig. 1). The manual

was then pilot tested in clinical practice. At each step, the implementation strategy described above was reflected upon and guided the decisions. The expert panel consisted of 9 individuals with knowledge in integrative oncology, communication, psychology, psycho-oncology, oncology, medical ethics, public health, and epidemiology. The literature search was conducted using the MEDLINE, CENTRAL, EMBASE, and Web of Science databases to identify suitable publications. On the basis of the literature analysis, a draft of the KOKON-KTO consultation manual was developed and discussed with the expert panel (first consensus round). Before the second consensus round, 1 patient representative and 23 oncology physicians were invited to complete an online survey (SoSci Survey²⁶ software) with 13 items on the structure and content of the manual (see Supporting Table 1). To determine acceptability, 1 physician (C.M.W.) with experience in CIM consultations conducted face-to-face interviews with 3 patients following a semistructured interview guideline (see Supporting Table 2). The results were discussed with the expert panel, and the manual was revised and finalized (third consensus round). In the subsequent pilot phase (November and December 2017), 3 oncology physicians with CIM expertise used the KOKON-KTO consultation manual in consultations with their patients and were interviewed by 1 interviewer (S.M.H.) following semistructured interview guidelines about their practical experience (see Supporting Table 3). The interview results were shared with the expert panel, and the manual was refined accordingly.

KOKON-KTO training

The learning objectives for the KOKON-KTO training followed the Bloom taxonomy²⁷ and were in line with the core set of educational competencies for integrative oncology that was developed in an international and interprofessional consensus procedure by the Society of Integrative Oncology.²⁸ Blended learning was adopted, in which we combined e-learning modules on the provider platform Moodlerooms/Open LMS²⁹ with a 2-day, on-site skills training workshop. The overall learning objective is as follows: after the KOKON-KTO training, oncology physicians should be able to compare different CIM therapies and other supportive therapies and to lead a context-adapted KOKON-KTO consultation. The specific learning objectives are: 1) after the e-learning session, oncology physicians should be able to a) classify the needs for and challenges of CIM in oncology, b) differentiate between various CIM therapies and other supportive therapies, and c) apply essential elements of a KOKON-KTO

consultation in case studies; and 2) after the on-site skills training workshop, oncology physicians should be able to a) apply knowledge about CIM therapies and other supportive therapies to specific situations, b) implement elements of a KOKON-KTO conversation in role-play exercises, c) deal practically with the challenges of CIM therapies and other supportive therapies in consultations, and d) conduct a KOKON-KTO consultation with a standardized patient.

E-learning

Topics of the e-learning portion were selected by members of the KOKON network³⁰ in light of CIM topics commonly discussed with patients who have cancer. Researchers and clinicians in the field of CIM and oncology were asked to coauthor e-learning lessons and were supported by an e-learning editor. E-learning lessons corresponded to learning objectives following constructive alignment rules.³¹ Lessons, formative assessments, and summative assessments (single and multiple-choice format) were integrated. Texts were reviewed by at least 2 independent reviewers with experience in the respective field. Stakeholders (oncology physicians, medical students) reviewed various aspects, such as the structure of the modules, the diversity of the learning experiences (eg, text, audio, video, infographics), and assessment questions. Tracking of learning success was used to remind participants to complete the e-learning (70% to pass) before attending the workshop.

Workshop

The 2-day, on-site skills training workshop aimed to combine knowledge from the e-learning lessons with clinical practice. By using diverse didactical methods, such as presentations and role-play exercises, oncology physicians were trained to follow the manual. At the end of the workshop, each oncology physician conducted a KOKON-KTO consultation with a standardized patient.³² In total, 4 workshops were performed (2 in March, 1 in November, and 1 in December 2018).

Eligibility Criteria for Participants in the KOKON-KTO Training

Oncology physicians were eligible if they fulfilled the following selection criteria: little knowledge of CIM, no previous structured trainings in CIM in the field of oncology, minimal experience in advising patients with cancer on CIM, ability to take part in the on-site skills training workshop, and good German-language skills. Participants (50% oncology gynecologists treating

malignancies such as breast and ovarian cancer; 50% medical oncologists treating other cancer types) were recruited from hospital departments and private practices specialized in oncology as part of an ongoing randomized controlled trial.³³ In Germany, oncology gynecologists are trained in surgical and pharmacologic treatment principles for the respective cancer entities. The included oncology physicians were either board-certified oncology residents or were in residency training treating their own patients with cancer.

Evaluation of KOKON-KTO Training

E-learning

After the e-learning lessons, physicians rated their satisfaction with the training. The web-based assessment (SoSci Survey) consisted of 19 items, which were rated on a numerical rating scale (NRS) from 1 (strongly disagree) to 4 (strongly agree), and 3 open-ended items. To assess whether the learning objectives were reached, situational judgement tests (SJTs) were presented to 2 training groups (November and December 2018) before and after the e-learning.³³ Participants were asked to choose the most suitable answer of 5 options for a given CIM-specific consultation situation. Depending on their specialization, physicians received either 6 gynecologic SJTs (3 breast cancer and 3 ovarian cancer) or 9 nongynecological SJTs (3 each of lung, pancreatic, and colon cancer).

Workshop

The workshop was evaluated on 2 levels (physician level and physician-patient interaction level). Oncology physicians completed a paper-and-pencil questionnaire (21 items rated on an NRS from 1 [strongly disagree] to 4 [strongly agree]) on their satisfaction. The KOKON-KTO consultations with standardized patients were rated by 2 independent, experienced external raters using a purpose-built questionnaire tailored to the KOKON-KTO consultation manual (10 items rated on an NRS from 1 [strongly disagree] to 10 [strongly agree]). All raters were trained for reliability. Interrater reliability was assessed by calculating the interclass correlation. If medium-to-high agreement was reached, then descriptive statistics were applied.

Semistructured, face-to-face interviews were conducted with each standardized patient, who was asked about their experience and perception in their role. The interviews were audiotaped and transcribed verbatim. A qualitative content analysis according to Flick³⁴ was performed and supported by the qualitative data-analysis software MAXQDA (VERBI Software).³⁵ The transcripts

were coded in content units combining deductive and inductive coding strategies. The research team predefined deductive codes according to the KOKON-KTO consultation manual. Other subcategories were created in a continuous process of inductively building codes from the data, and an intersubjective validation of the coding by 2 independent researchers was conducted to verify the reliability and robustness of the data analysis.

RESULTS

Development of the KOKON-KTO Framework

KOKON-KTO consultation manual

The literature search revealed 8 publications with relevance for the project. One of these articles⁷ provided the main guidance, which included 5 consecutive steps, whereas the other publications contributed to the topics covered by the manual (Table 1).^{6-7,14,23,36-40} In the first consensus round, relevant aspects of the consultation context, such as the setting and the effect of the physician's attitude, were added.

In the second consensus round, feedback from the survey participants (n = 11) resulted in additional recommendations on how to tackle challenges, such as whether the conversation moved away from the CIM topic, and the addition of *inform* as a first step in the manual to communicate general aspects of the consultation. Three survey participants suggested more individualization in the consultation step order; 6 participants stated that the content of the guideline might exceed the time frame. The semistructured interviews with 3 patients who had cancer showed overall satisfaction. However, 1 patient would have preferred a longer consultation to discuss his previous CIM experience in depth.

In the third round, the manual was divided into 3 sections: section A, providing guidance to the *context*; section B, the steps of the KOKON-KTO consultation (*inform*, *capture*, *prioritize*, *advise*, *discuss*, *concretize advice*), and section C, *monitor*. The steps *capture*, *prioritize*, *advise*, and *discuss* could now be applied in flexible order, allowing adaptation to each physicians' communication style. The final KOKON-KTO consultation manual (see Supporting Information) described 8 steps, including example phrases and recommendations on how to deal with the typical challenges that could occur during a KOKON-KTO consultation. To facilitate convenient use of the manual, a pocket card (Fig. 2) was developed. In addition, a questionnaire to capture patients' previous CIM use was provided as part of the training materials.

TABLE 1. Structure and Topics of the First Draft of the Manual

Steps	Topic	Reference(s)
Opening of the consultation	Personal greeting Setting	Trant 2019 ³⁶ Schofield 2010, ⁷ Johnston & Beckman 2019, ³⁷ Paladino 2019, ³⁸ Foley 2019, ³⁹ Ben-Arye & Samuels 2019 ⁴⁰
Understand and respect patients' perspective	General reasons for CIM use Risks of interaction and side effects of CIM Empathy	Schofield 2010 ⁷ Verhoef 2008 ⁶ Verhoef 2008, ⁶ Schofield 2010 ⁷
Asking about CIM use and reasons why	Patients' interest Previous and present CIM use	Verhoef 2008, ⁶ Schofield 2010, ⁷ Lee 2014 ¹⁴ Schofield 2010, ⁷ Lee 2014 ¹⁴
Advise and respond	Introduction to nutrition Introduction to exercise and relaxation Individual recommendations on CIM Shared decision making	Schofield 2010 ⁷ Schofield 2010 ⁷ Schofield 2010, ⁷ Lee 2014 ¹⁴ Verhoef 2008, ⁶ Schofield 2010 ⁷
Summarize	Summary Development of therapy plan End of consultation and follow-up/documentation	Schofield 2010, ⁷ Johnston & Beckman 2019 ³⁷ Schofield 2010, ⁷ Lee 2014 ¹⁴ Verhoef 2008, ⁶ Schofield 2010, ⁷ Lee 2014 ¹⁴

Abbreviation: CIM, complementary and integrative medicine.

Pilot testing in clinical practice

Three oncology physicians conducted KOKON-KTO consultations with 9 patients. The manual seemed to be feasible for physicians who had basic CIM knowledge. The flexibility of the steps was received positively, and small design changes for the pocket card were suggested. The physicians agreed that the manual structure met patients' needs and highlighted the necessity of informing patients from the beginning about the aim of the consultation to set expectations.

The KOKON-KTO training

The e-learning consisted of 9 units (45 minutes each) divided into 3 mandatory courses: CIM and cancer (1 unit), CIM therapies (6 units), and KOKON-KTO consultation (2 units) (see Supporting Table 4).

The workshop consisted of 16 units over 2 days (see Supporting Table 4). Because the manual-guided KOKON-KTO consultation was developed to be conducted with the oncology physician's own patients, the participants were introduced to 1 case vignette (a female patient who had cancer with fatigue) before the workshop. All role-play exercises used the same case vignette, but the focus or treatment stage was varied according to the learning objectives of the lecture.

Evaluation of the KOKON-KTO Training

In total, 47 oncology physicians were recruited (see Supporting Table 5). However, only 37 completed the e-learning module and its evaluation (see for e-learning results, see Fig. 3; for workshop results, see Fig. 4). Because oncology physicians were recruited from an

ongoing randomized controlled trial, physicians from the control group³³ received the training after the intervention phase (11 months after recruitment). Reasons for the dropouts included job change, unavailability on the workshop date, and health reasons. Overall, the e-learning and the workshop were rated positively, and the majority of participants were satisfied with the content and its presentation. Moreover, the participants showed good overall results in the SJTs (average proportion of correct group answers: gynecologic SJTs, 83.3%; oncologic SJTs, 77.8%).

The agreement between external raters for the participant observation during the KOKON-KTO consultations with a standardized patient was substantial (average interclass correlation, $R^2 = 0.58 \pm 0.29$). An analysis of the purpose-built rating scale for the role-play exercises during the training showed that participants were able to demonstrate each of the components specified in the KOKON-KTO consultation manual (Table 2) within the time frame.

Interviews with standardized patients

Standardized patients in their role felt positive about the KOKON-KTO consultation. The timeframe for the consultation was found to be appropriate. One standardized patient thought that even less than 20 minutes might be feasible to prevent patients from being overloaded with information. They felt enabled to take up time to speak or to interrupt the physicians if necessary. However, in some situations, they felt that they were not allowed enough time to speak about themselves and their complaints (as the standardized patient

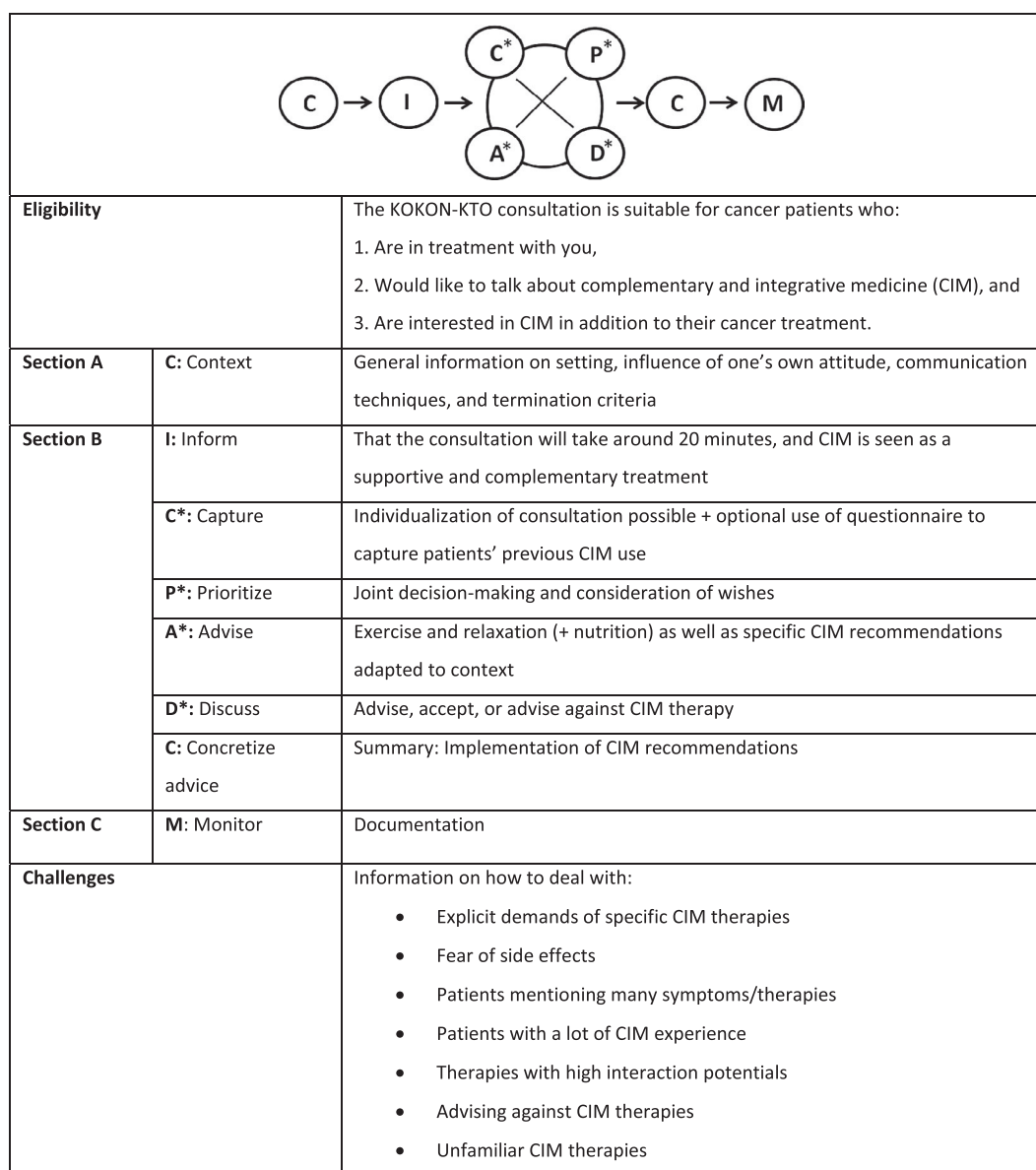


Figure 2. Details of the final training content, as presented in a pocket card that can be used during consultations, are shown. An asterisk indicates complementary and integrative medicine (CIM). KOKON-KTO indicates Competence Network for Complementary Medicine - Consultation Training for Oncology Physicians.

with cancer). The relevant content of the scientific information seemed to be understandable to them. Nevertheless, they did not always understand the scientific explanation or the meaning of the scientific terms (see Supporting Table 6).

Standardized patients especially welcomed individual, resource-oriented CIM recommendations by the physicians. In their opinion, such an approach facilitated implementation of the CIM recommendations into daily practice.

Implementation strategy

The successful realization of the implementation strategy was reflected in fast recruitment and a waiting list for study participation. Of the 37 oncology physicians participating in the e-learning module, 100% completed and 98% participated in its evaluation. After recruitment, physicians had to wait up to 11 months for the workshop; still, 77% participated in the workshop. The KOKON-KTO framework was developed for oncology physicians on the assumption that they are often asked about CIM

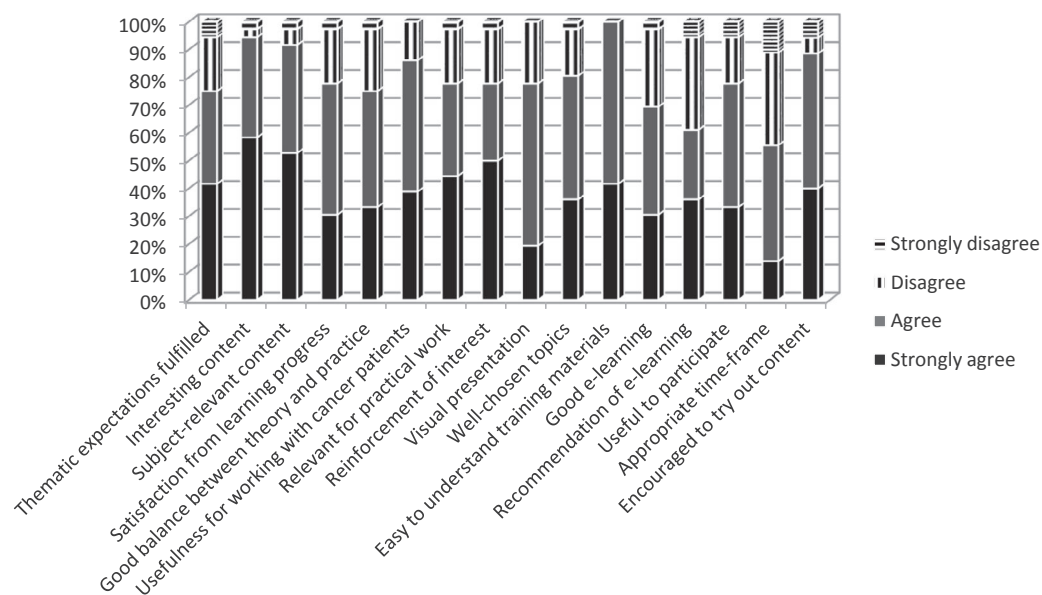


Figure 3. Evaluation results (e-learning) are illustrated. Items were scored on a categorical scale ranging from 1 (strongly disagree) to 4 (strongly agree).

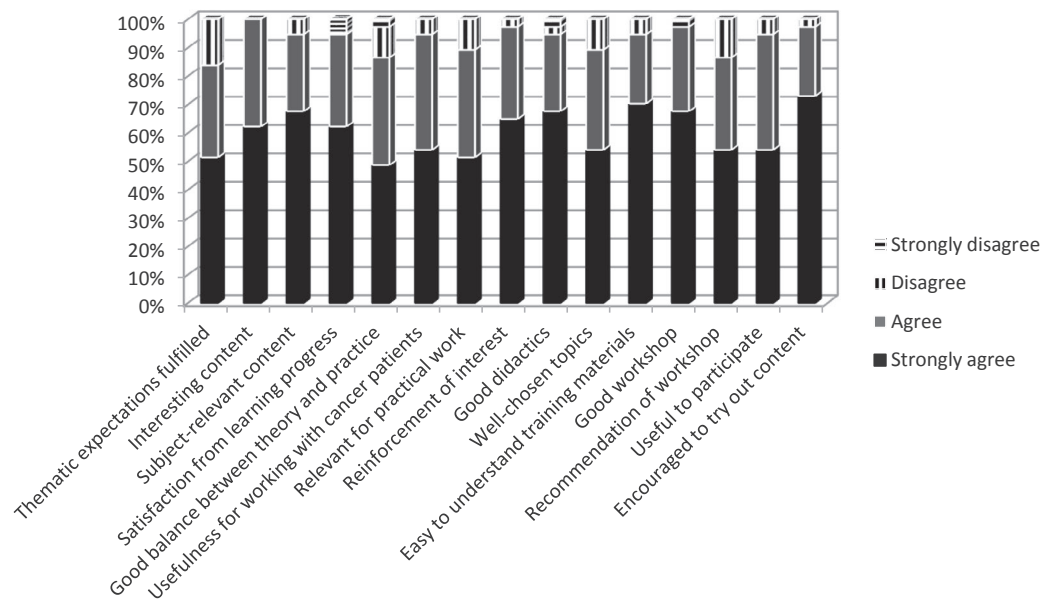


Figure 4. Evaluation results (workshop) are illustrated. Items were scored on a categorical scale ranging from 1 (strongly disagree) to 4 (strongly agree).

by patients with cancer. Given the rapid recruitment of study participants (including a waiting list), the assumption can be considered confirmed, and implementation of the manual can be considered likely. Timeframe and content were implemented as planned and were efficient

in teaching CIM content (see results for SJTs, above); moreover, all physician participants were able to conduct a KOKON-KTO consultation at the end of the training. Because the consultation was developed to be applied during the physicians' daily workflow, implementation

TABLE 2. Rating of Consultation With Standardized Patients at the End of the Workshop, With 2 Raters per Oncology Physician (Mean \pm Standard Deviation Over All Physicians)^a

Participant Was Able To:	Rating: Mean \pm SD		
	Gynecology, n = 17	Oncology, n = 20	Total, n = 37
Explain CIM as a supportive therapy (<i>inform</i>)	8.7 \pm 2.1	9.1 \pm 1.9	8.9 \pm 2.0
Record experiences and current CIM use of the patient according to the situation (<i>capture</i>)	9.5 \pm 1.2	9.9 \pm 0.6	9.7 \pm 0.9
Set priorities internally or with the patient and communicate this process to the patient (<i>prioritize</i>)	8.6 \pm 1.4	9.1 \pm 1.3	8.9 \pm 1.4
Inform about the general potential of movement and relaxation in cancer (<i>advise</i>)	9.7 \pm 0.8	9.5 \pm 1.1	9.6 \pm 1.0
Give information on concrete CIM therapies (depending on the situation and the patient's questions)	9.9 \pm 0.4	9.7 \pm 0.5	9.8 \pm 0.5
Advise, accept, or advise against CIM treatment (<i>discuss</i>)	9.5 \pm 1.0	9.9 \pm 0.4	9.7 \pm 0.8
Give concrete recommendations for an implementation (<i>concretize</i>)	9.4 \pm 0.8	9.2 \pm 0.8	9.3 \pm 0.8
Consider all steps of the KOKON-KTO consultation manual	9.2 \pm 0.9	9.1 \pm 1.1	9.1 \pm 1.0
Always put focus on CIM during conversation	10.0 \pm 0.0	9.9 \pm 0.4	10.0 \pm 0.3
Address the challenge posed by means of a recommendation given in the guideline (<i>advise</i> : explain reason, offer alternative)	8.4 \pm 2.2	9.1 \pm 1.4	8.7 \pm 1.8

Abbreviations: CIM, complementary and integrative medicine; KOKON-KTO, Competence Network for Complementary Medicine - Consultation Training for Oncology Physicians.

^aItems were rated on a numerical rating scale from 1 (strongly disagree) to 10 (strongly agree).

has a low threshold and requires no extra costs for clinics or private practices.

DISCUSSION

The project resulted in a blended learning program for oncology physicians that uses common standards for competencies and learning objectives. The training was based on a consultation manual, and criteria defined as relevant for broad training implementation were reached. The ratings of the KOKON-KTO consultations with standardized patients and the SJTs showed that the learning objectives were fulfilled. However, because this study did not assess the participants in their own clinical activity, the implementation and fidelity of the KOKON-KTO consultation manual needs further investigation in the ongoing KOKON-KTO study.³³ Standardized patients may provide indications but cannot represent patients actually diagnosed with cancer.

As part of the implementation strategy for the KOKON-KTO framework, trained oncology physicians continue to provide feedback within the ongoing KOKON-KTO study. Applying the KOKON-KTO skills in their own clinical environment, oncology physicians will provide information on its clinical feasibility (duration of the consultation and implementation in the daily work practice), patient and physician satisfaction with the consultation, as well as challenges occurring during the KOKON-KTO consultation. Moreover, patients will

answer questionnaires about their satisfaction, preparation for decision making on CIM, physicians' communication skill level, and their CIM use. This will provide results both on feasibility and on the quality of communication and preparation for decision making. Another aspect that must continuously to be monitored is its feasibility (eg, reimbursement, time, change of attitudes toward CIM) in health systems.

The KOKON-KTO training, with its evidence-based approach to CIM, fits the needs expressed by physicians.^{17,19,41} The combination of e-learning with an on-site workshop was well received, and these results were in line with previous findings.¹⁷ The evaluation process clearly showed that the continuous adaptation of the framework was useful. However, the e-learning lessons could be adapted more closely to the manual to provide a good knowledge foundation for the on-site workshop. Furthermore, e-learning could allow more individual freedom to deepen CIM knowledge over optional modules, which might have led to higher satisfaction with the learning progress and a reduction in training time.

The on-site workshop included a strong focus on communication skills. The physicians' individual communication style may influence patient satisfaction⁴¹; moreover, the literature suggests that, especially for physicians working in oncology, a patient-centered communication approach may not only enhance shared decision making but also may lead to better therapy outcomes.³⁷⁻³⁹

Concerns that were expressed in the surveys regarding the timeframe and a possible lack of individualization were not confirmed.

A limitation of the study is that training only 1 profession of the cancer care team does not reflect the multidimensional communication axis that is in place in routine care. Oncology care is applied in an inter-professional context, and this needs to be addressed in the future. However, the literature described a clear gap between patients' needs and physicians' skills, so commencing with oncology physicians (who have early contact with patients during their cancer journey) seemed to be the appropriate starting point. Future research calls for broadening the KOKON-KTO framework to other professions. In addition to interprofessional aspects, the future research should also take into account intercultural aspects.

Finally, oncology physicians who have received KOKON-KTO training cannot replace integrative physicians, who will have far greater training and in-depth knowledge of integrative therapies. The KOKON-KTO framework does not train integrative oncology physicians to whom the cancer team can refer for special treatment. There are other training programs available, including some online,⁴⁰ that focus on those competencies.

The KOKON-KTO framework enables oncology physicians to provide basic evidence-based advice on CIM to their patients with cancer. This may allow an improved standard of care by reducing side effects of CAM use and improving adherence to cancer treatments.

Conclusion

To the best of our knowledge, the KOKON-KTO framework provides a systematically developed, evidence-based and evaluated CIM consultation manual and training for oncology physicians. We have demonstrated that the KOKON-KTO framework is suitable for training oncology physicians to give CIM advice to their patients with cancer, and its implementation could lead to better physician-patient communication about the use of CIM.

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CONFLICT OF INTEREST DISCLOSURES

The authors made no disclosures.

AUTHOR CONTRIBUTIONS

Claudia M. Witt: Wrote the article and contributed to the design and conduct of the study. **Stefanie M. Helmer:** Wrote the article and contributed to the design and conduct of the study. **Marisa Wastell:** Contributed to the study and revised the article. **Penelope Schofield:** Contributed to the study and revised the article. **Anita V. Thomae:** Developed the majority of the e-learning content. **Claudia Canella:** Supervised the qualitative analysis. **Alizé A. Rogge:** Wrote the article and contributed to the design and conduct of the study. All authors read and approved the final version of the article.

REFERENCES

1. Horneber M, Bueschel G, Dennert G, Less D, Ritter E, Zwahlen M. How many cancer patients use complementary and alternative medicine: a systematic review and metaanalysis. *Integr Cancer Ther.* 2012;11(3):187-203.
2. Vickers KA, Jolly KB, Greenfield SM. Herbal medicine: women's views, knowledge and interaction with doctors: a qualitative study. *BMC Complement Altern Med.* 2006;6:40.
3. Kessel KA, Lettner S, Kessel C, et al. Use of complementary and alternative medicine (CAM) as part of the oncological treatment: survey about patients' attitude towards CAM in a university-based oncology center in Germany. *PLoS One.* 2016;11:e0165801.
4. Verhoef MJ, Balneaves LG, Boon HS, Vroegindewey A. Reasons for and characteristics associated with complementary and alternative medicine use among adult cancer patients: a systematic review. *Integr Cancer Ther.* 2005;4:274-286.
5. Johnson SB, Park HS, Gross CP, Yu JB. Complementary medicine, refusal of conventional cancer therapy, and survival among patients with curable cancers. *JAMA Oncol.* 2018;4:1375-1381.
6. Verhoef MJ, Boon HS, Page SA. Talking to cancer patients about complementary therapies: is it the physician's responsibility? *Curr Oncol.* 2008;15(suppl 2):s88-s93.
7. Schofield P, Diggins J, Charleson C, Marigliani P, Jeffor M. Effectively discussing complementary and alternative medicine in a conventional oncology setting. Communication recommendations for clinicians. *Patient Educ Couns.* 2010;79:143-151.
8. Oskay-Ozelik G, Lehmacher W, Konsgen D, et al. Breast cancer patients' expectations in respect of the physician-patient relationship and treatment management results of a survey of 617 patients. *Ann Oncol.* 2007;18:479-484.
9. Arthur K, Belliard JC, Hardin SB, Knecht K, Chen CS, Montgomery S. Reasons to use and disclose use of complementary medicine use—an insight from cancer patients. *Cancer Clin Oncol.* 2013;2:81-92.
10. Roter DL, Yost KJ, O'Byrne T, et al. Communication predictors and consequences of complementary and alternative medicine (CAM) discussions in oncology visits. *Patient Educ Couns.* 2016;99:1519-1525.
11. van den Brink-Muinen A, Rijken PM. Does trust in health care influence the use of complementary and alternative medicine by chronically ill people? *BMC Public Health.* 2006;6:188-188.
12. Ben-Arye E, Dahan O, Shalom-Sharabi I, Samuels N. Inverse relationship between reduced fatigue and severity of anemia in oncology patients treated with integrative medicine: understanding the paradox. *Support Care Cancer.* 2018;26:4039-4048.
13. Shalom-Sharabi I, Lavie O, Samuels N, Keinan-Boker L, Lev E, Ben-Arye E. Can complementary medicine increase adherence to chemotherapy dosing protocol? A controlled study in an integrative oncology setting. *J Cancer Res Clin Oncol.* 2017;143:2535-2543.
14. Lee RT, Barbo A, Lopez G, et al. National survey of US oncologists' knowledge, attitudes, and practice patterns regarding herb and supplement use by patients with cancer. *J Clin Oncol.* 2014;32:4095-4101.
15. Witt C. Training oncology physicians to advise their patients on complementary and integrative medicine. *J Altern Complement Med.* 2018;24(9-10):1016-1017.
16. Frenkel M. Clinical consultation. A personal perspective: components of a successful integrative medicine clinical consultation. *J Soc Integr Oncol.* 2008;6:129-133.
17. Klein GE, Guethlin C. Information and training needs regarding complementary and alternative medicine: a cross-sectional study of cancer care providers in Germany. *Integr Cancer Ther.* 2018;17:380-387.

18. Munstedt K, Harren H, von Georgi R, Hackethal A. Complementary and alternative medicine: comparison of current knowledge, attitudes and interest among German medical students and doctors. *Evid Based Complement Alternat Med*. 2011;2011:790951.
19. Tautz E, Momm F, Hasenburg A, Guethlin C. Use of complementary and alternative medicine in breast cancer patients and their experiences: a cross-sectional study. *Eur J Cancer*. 2012;48:3133-3139.
20. Tasaki K, Maskarinec G, Shumay DM, Tatsumura Y, Kakai H. Communication between physicians and cancer patients about complementary and alternative medicine: exploring patients' perspectives. *Psychooncology*. 2002;11:212-220.
21. Bauer MS, Kirchner J. Implementation science: what is it and why should I care? *Psychiatry Res*. 2020;283:112376.
22. Blodt S, Mittring N, Schutzler L, et al. A consultation training program for physicians for communication about complementary medicine with breast cancer patients: a prospective, multi-center, cluster-randomized, mixed-method pilot study. *BMC Cancer*. 2016;16:843.
23. Glasgow RE, Vogt TM, Boles SM. Evaluating the public health impact of health promotion interventions: the RE-AIM framework. *Am J Public Health*. 1999;89:1322-1327.
24. Ben-Arye E, Frenkel M. An approach to teaching physicians about complementary medicine in the treatment of cancer. *Integr Cancer Ther*. 2004;3:208-213.
25. Ben-Arye E, Frenkel M, Bar-Sela G, Margalit RS, Hermoni D, Kuten A. Teaching complementary medicine at an academic oncology department. *J Cancer Educ*. 2008;23:46-50.
26. Leiner DJ. SoSci Survey 2014. Accessed August 8, 2017. <https://www.sosicurvey.de/>
27. Anderson LW, Krathwohl DR, Airasian PW, et al. A Taxonomy for Learning, Teaching, and Assessing: Pearson New International Edition: A Revision of Bloom's Taxonomy of Educational Objectives, Abridged Edition. Pearson New International Edition: Pearson Education Limited; 2013.
28. Society for Integrative Oncology. Society for Integrative Oncology website, 2018. Accessed October 11, 2018. <https://integrativeonc.org/>
29. Moodlerooms. Moodlerooms. 2005. Accessed August 10, 2017. <https://www.neocosmo.de/blackboard/>
30. Witt CM, Bartsch HH, Guethlin C, et al. Kompetenznetz Komplementärmedizin in der Onkologie (KOKON)—Ein wissenschaftlicher Beitrag zur Verbesserung der Versorgung. *Forum*. 2017;32:416-423.
31. Biggs J, Tang C. Teaching for Quality Learning at University. McGraw-Hill and Open University Press; 2011.
32. ChariteUniversityofMedicineofBerlin. Simulationspatientenprogramm. 2018; Accessed October 11, 2018. https://www.charite.de/studium_lehre/struktur_einrichtungen/simulationspatientenprogramm/
33. Helmer SM, Rogge AA, Fischer F, et al. Evaluation of a blended-learning training concept to train oncology physicians to advise their patients about complementary and integrative medicine (KOKON-KTO): study protocol for a prospective, multi-center, cluster-randomized trial. *Trials*. 2019;20:90.
34. Flick U. Doing Triangulation and Mixed Methods. Vol 2. Sage Publications; 2018.
35. MAXQDA Analytics Pro [computer program]. VERBI Software; 2016.
36. Trant AA, Szekely B, Mougalian SS, et al. The impact of communication style on patient satisfaction. *Breast Cancer Res Treat*. 2019;176:349-356.
37. Johnston FM, Beckman M. Navigating difficult conversations. *J Surg Oncol*. 2019;120:23-29.
38. Paladino J, Bernacki R, Neville BA, et al. Evaluating an intervention to improve communication between oncology clinicians and patients with life-limiting cancer: a cluster randomized clinical trial of the Serious Illness Care Program. *JAMA Oncol*. 2019;5:801-809.
39. Foley H, Steel A, Cramer H, Wardle J, Adams J. Disclosure of complementary medicine use to medical providers: a systematic review and meta-analysis. *Sci Rep*. 2019;9:1573.
40. Ben-Arye E, Samuels N. Traditional herbal medicine in supportive cancer care: from alternative to integrative. Accessed October 31, 2019. <https://www.coursera.org/learn/cancer-medicine-alternative-herbal-asia>
41. Klein E, Beckmann MW, Bader W, et al. Gynecologic oncologists' attitudes and practices relating to integrative medicine: results of a nationwide AGO survey. *Arch Gynecol Obstet*. 2017;296:295-301.